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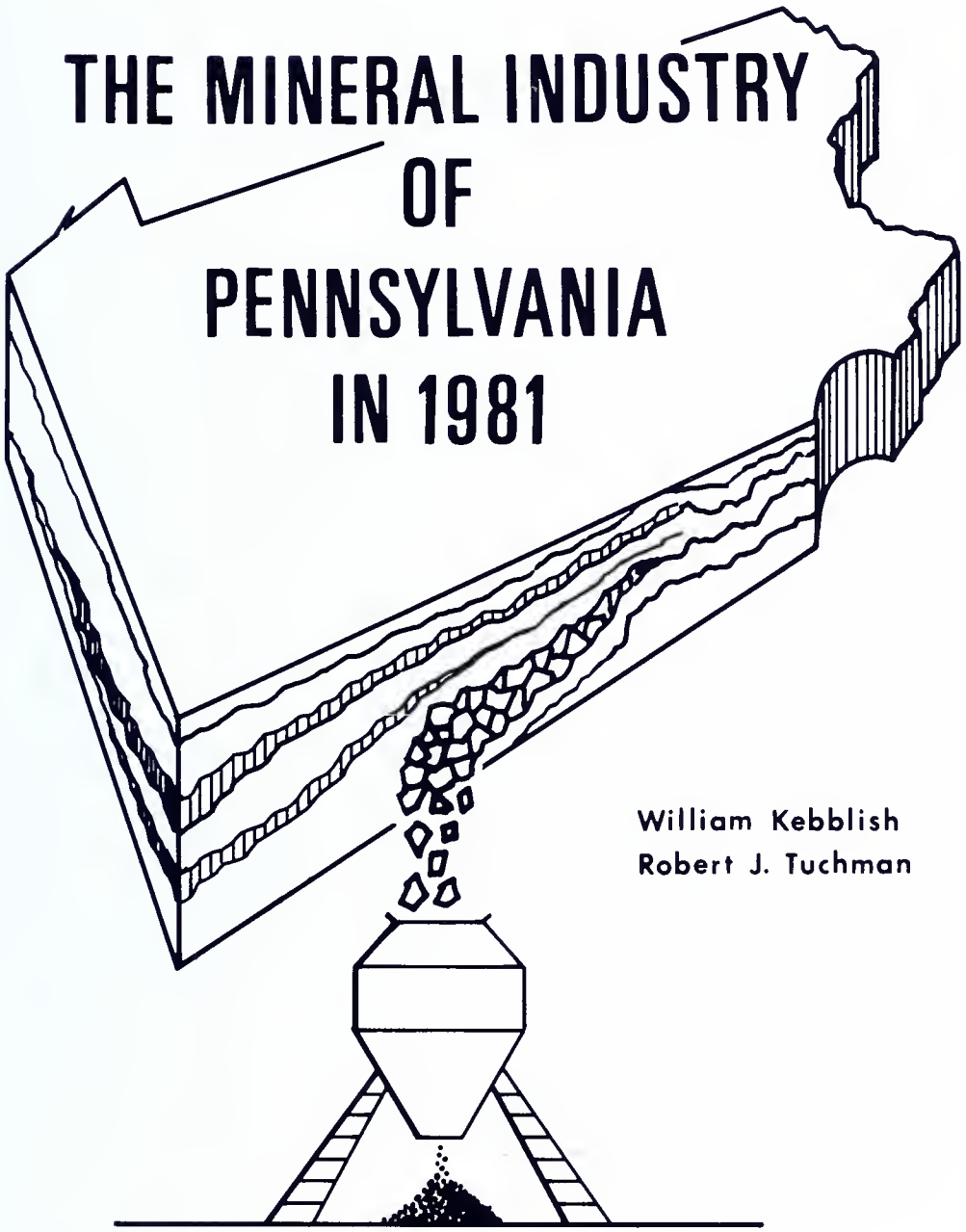
1983

THE MINERAL INDUSTRY OF PENNSYLVANIA IN 1981



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COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
OFFICE OF RESOURCES MANAGEMENT
BUREAU OF
TOPOGRAPHIC AND GEOLOGIC SURVEY
Arthur A. Socolow, State Geologist

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The Mineral Industry of Pennsylvania

This chapter has been prepared under a Memorandum of Understanding between the Bureau of Mines, U.S. Department of the Interior, and the Pennsylvania Bureau of Topographic and Geologic Survey, Department of Environmental Resources, for collecting information on all nonfuel minerals.

By William Kebblish[1] and Robert J. Tuchman[2]

The value of Pennsylvania's nonfuel mineral production was $633.1 million in 1981, a 5% decrease from that of 1980. The decrease was related to economic conditions curtailing activities in nearly all mineral-related industries. Pennsylvania led the Nation in production of masonry cement and iron slag. The State was second in the production of pig iron; third in portland cement, lime, and stone; and fifth in expanded perlite and zinc. Nationally, Pennsylvania ranked 13th in value of total nonfuel mineral output.

Table 1.—Nonfuel mineral production in Pennsylvania[1]

Mineral		1980		1981	
		Quantity	Value (thousands)	Quantity	Value (thousands)
Cement:					
Masonry	thousand short tons	324	$20,298	293	$14,799
Portland	do	5,570	237,684	5,150	215,883
Clays[2]	do	1,650	12,112	1,246	7,497
Gem stones		---	---	NA	5
Lime	thousand short tons	1,768	84,291	1,690	85,418
Mica (scrap)	do	3	W	3	134
Peat	do	26	552	25	647
Sand and gravel	do	15,603	68,257	p [3]14,300	p [3]55,400
Stone:					
Crushed	do	61,143	218,231	53,258	207,821
Dimension	do	65	6,397	51	7,193
Tripoli	short tons	W	W	1,263	W
Zinc (recoverable content of ores, etc.)	metric tons	22,556	18,613	24,732	24,293
Combined value of clays (kaolin), sand and gravel (industrial 1981), and values indicated by symbol W		XX	1,171	XX	13,966
Total		XX	667,606	XX	633,056

pPreliminary. NA Not available. W Withheld to avoid disclosing company proprietary data; value included in "Combined value" figure. XX Not applicable.

[1]Production as measured by mine shipments, sales, or marketable production (including consumption by producers).

[2]Excludes kaolin; value included in "Combined value" figure.

[3]Excludes industrial sand; value included in "Combined value" figure.

Table 2.—Value of nonfuel mineral production in Pennsylvania, by county[1]

(Thousands)

County	1979	1980	Minerals produced in 1980 in order of value
Adams	W	$20,603	Stone, lime, clays, mica.
Allegheny	W	W	Cement, clays, stone, sand and gravel.
Armstrong	W	W	Sand and gravel, stone, clays.
Beaver	$12,419	W	Sand and gravel, clays.
Bedford	2,737	W	Stone.
Berks	W	W	Cement, stone, clays.
Blair	W	W	Stone, sand and gravel.
Bradford	W	889	Sand and gravel.
Bucks	W	W	Stone, sand and gravel, clays.
Butler	r36,658	29,295	Lime, cement, stone, sand and gravel, clays.
Cambria	W	--	
Cameron	W	W	Sand and gravel.
Carbon	W	W	Sand and gravel, stone.
Centre	35,491	35,609	Lime, stone.
Chester	W	W	Stone, lime, clays.
Clarion	W	W	Stone, sand and gravel.
Clearfield	W	W	Clays, sand and gravel.
Clinton	W	W	Stone, clays.
Columbia	W	W	Stone, sand and gravel.
Crawford	917	667	Sand and gravel.
Cumberland	5,523	W	Stone, sand and gravel, clays.
Dauphin	W	W	Stone, sand and gravel.
Delaware	W	W	Stone.
Elk	W	66	Do.
Erie	4,643	4,484	Sand and gravel, peat.
Fayette	5,868	W	Stone, clays.
Forest	W	W	Sand and gravel, stone.
Franklin	W	W	Stone, sand and gravel.
Fulton	W	W	Do.
Huntingdon	W	W	Sand and gravel, stone.
Jefferson	W	W	Clays, stone.
Juniata	W	W	Stone.
Lackawanna	831	828	Stone, peat, sand and gravel.
Lancaster	W	W	Stone, clays.
Lawrence	W	W	Cement, stone, sand and gravel, clays, peat.
Lebanon	W	W	Lime, stone.
Lehigh	W	W	Cement, zinc, stone.
Luzerne	W	W	Sand and gravel, stone, clays, peat.
Lycoming	W	W	Sand and gravel, stone.
McKean	W	W	Clays, stone.
Mercer	W	W	Sand and gravel, stone.
Mifflin	987	1,042	Stone, sand and gravel, lime.
Monroe	W	W	Stone, sand and gravel, clays, peat.
Montgomery	W	15,925	Stone, lime, clays.
Montour	W	W	Stone.
Northampton	W	120,043	Cement, stone, sand and gravel.
Northumberland	W	W	Stone, sand and gravel, clays, tripoli.
Perry	W	W	Stone.
Philadelphia	W	W	Sand and gravel.
Pike	1,086	1,025	Sand and gravel, stone.
Schuylkill	W	W	Stone, sand and gravel.
Snyder	W	W	Stone.
Somerset	4,431	3,766	Stone, clays, sand and gravel.
Susquehanna	W	W	Stone, sand and gravel.
Tioga	995	W	Sand and gravel, stone.
Union	W	W	Stone, clays.
Venango	889	1,035	Sand and gravel.
Warren	1,359	1,733	Do.
Wayne	936	W	Stone, sand and gravel.
Westmoreland	W	W	Do.
Wyoming	W	W	Sand and gravel.
York	59,119	52,430	Cement, stone, lime, sand and gravel, clays.
Undistributed	r546,830	378,167	
Total[2]	721,720	667,606	

rRevised. W Withheld to avoid disclosing company proprietary data; included with "Undistributed."

[1]Greene, Indiana, Potter, Sullivan, and Washington Counties are not listed because no nonfuel mineral production was reported.

[2]Data may not add to totals shown because of independent rounding.

Table 3.—Indicators of Pennsylvania business activity

	1980	1981[p]	Change, percent
Employment and labor force, annual average:			
Total civilian labor force ____ thousands	5,341.0	5,386.3	+0.8
Unemployment ____ do	403.0	500.0	+24.1
Employment (nonagricultural):			
Mining[1] ____ do	49.0	45.2	-7.8
Manufacturing ____ do	1,328.2	1,299.7	-2.2
Contract construction ____ do	190.1	182.5	-4.0
Transportation and public utilities ____ do	263.3	258.3	-1.9
Wholesale and retail trade ____ do	988.3	986.1	-.2
Finance, insurance, real estate ____ do	236.6	240.6	+1.7
Services ____ do	974.1	1,006.2	+3.3
Government ____ do	723.3	705.4	-2.5
Total nonagricultural employment[1 2] ____ do	4,753.1	4,724.1	-.6
Personal income:			
Total ____ millions	$112,137	$123,137	+9.8
Per capita	$9,427	$10,373	+10.0
Construction activity:			
Number of private and public residential units authorized	30,561	23,724	-22.4
Value of nonresidential construction ____ millions	$1,025.1	$1,474.5	+43.8
Value of State road contract awards ____ do	$616.0	$300.0	-51.3
Shipments of portland and masonry cement to and within the State, thousand short tons	2,630	2,402	-8.7
Nonfuel mineral production value:			
Total crude mineral value ____ millions	$667.6	$633.1	-5.2
Value per capita, resident population	$56	$53	-5.4
Value per square mile	$14,727	$13,964	-5.2

[p]Preliminary.
[1]Includes coal (anthracite and bituminous), gas, and oil extraction.
[2]Data may not add to totals shown because of independent rounding.

Sources: U.S. Department of Commerce, U.S. Department of Labor, Highway and Heavy Construction Magazine, and U.S. Bureau of Mines.

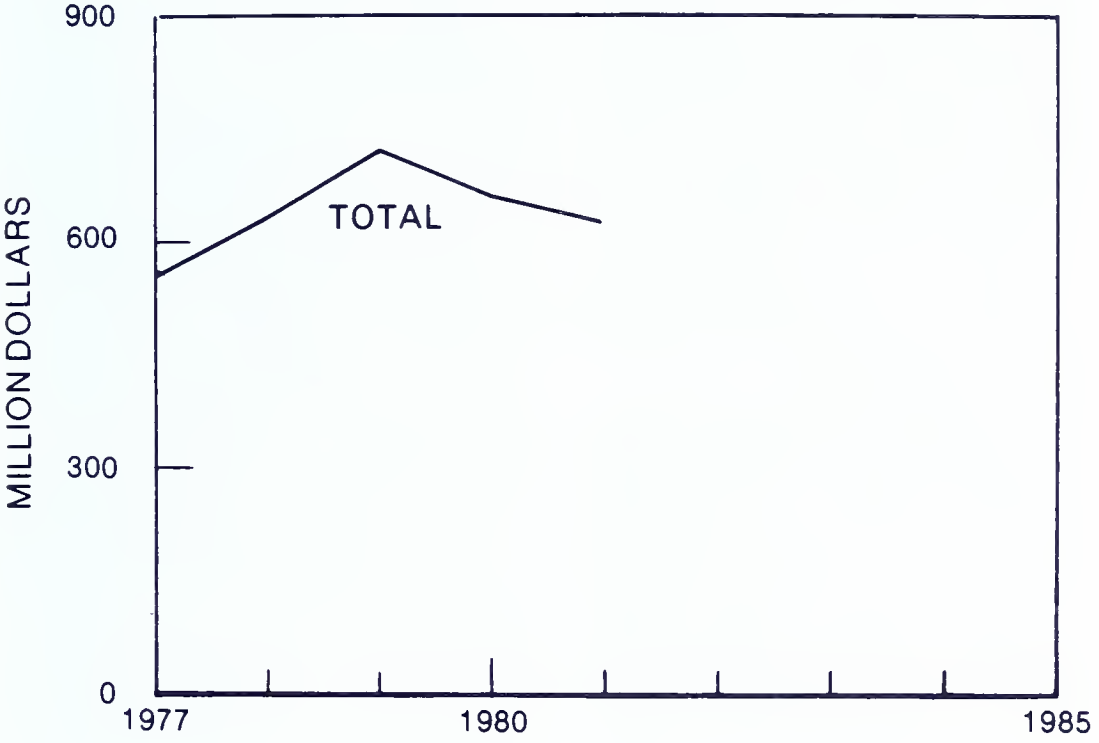

Figure 1.—Total value of nonfuel mineral production in Pennsylvania.

Trends and Developments.—A deepening recessionary trend affected nearly all mineral producers in the State. Manufacturing employment decreased compared with that of 1980, the greatest loss occurring in primary metals, followed by basic steel; employment in contract construction decreased 4%. Housing starts in Pennsylvania totaled 23,724 units in 1981, a decline of more than 22% compared with those of 1980 and more than 56% compared with those of a decade ago. With a reduction in housing starts, the cement, sand and gravel, and stone industries were adversely affected. Over the past decade, output of masonry cement has decreased approximately 47%; portland cement, 34%; sand and gravel, 22%; and stone, 5%.

At yearend, United States Steel Corp. announced closure of its massive Edgar Thomson Works near Pittsburgh for an indefinite period and suspension of operations at the hot strip mill of the company's Irvin Works, West Mifflin. Other steel companies reduced their work forces, temporarily idled operations, and closed marginal plants.

Emission control standards constituted a concern to Pennsylvania's steel industry. A study released by Arthur D. Little, Inc., in midyear indicates additional finances are needed by the Nation's steel industries to remove pollutants from smokestack emissions. The report also specifies the need for plant modernizations to increase productivity.

On a local level, the Allegheny County Board of Health was considering the "bubble concept" to control pollutants. The concept permits a company to use alternative strategies to control emissions within a plant, providing air quality in the general area does not deteriorate.

The transportation industry continued to play an important part in the State's economy. In late 1981, Consolidated Rail Corp. (Conrail) announced iron and steel rate reductions in order to compete with the deregulated trucking industry. The discounts apply to shipments exclusively on Conrail lines.

At yearend, mine operators and manufacturers were concerned by Conrail's planned abandonment of 22.5 miles of track in the Wilkes-Barre area. This abandonment, together with others totaling 102 miles, may be purchased by Pocono Northeast Railway, Inc.

Water transportation remained important to mineral producers using inland waterways to move products. Many locks and dams along the Allegheny, Ohio, and Monongahela Rivers are in need of repairs. Operating funds for the U.S. Army Corps of Engineers, which maintains and operates the locks and dams, have been reduced. In late 1981, the Governors of Pennsylvania, Ohio, and West Virginia met to obtain support for a $300 million waterway modernization project. At yearend, some Federal finances were made available, and the Corps of Engineers began repairing those locks and dams most in need of repairs. To raise additional finances for the waterways, suggestions ranged from a river users tax to additional tax on fuel used by barge lines.

Pennsylvania's cement industry was marked by an increase in foreign-owned plants. At yearend, General Portland, Inc., which purchased the Whitehall Cement Manufacturing Co. earlier in the year, was acquired by Canada Cement Lafarge Ltd. The acquisition makes Canada Cement Lafarge the largest cement producer in North America. Other foreign-owned companies include Hercules Cement Co. (IFI International of Italy), Coplay Cement Manufacturing Co. (Société des Ciments Français of France), and the Lehigh Portland Cement Co. (Heidelberger Zement AG of the Federal Republic of Germany).

In 1981, Pennsylvania was second to Kentucky in use of explosives. Of the 432 million pounds used, approximately 15% was for quarrying and nonmetal mining operations, 3% for construction activities and other purposes, and the remainder for coal operations. Types of explosives used in Pennsylvania were mainly unprocessed ammonium nitrate and ammonium nitrate fuel-mixed agents. Other types, in descending order by weight, were water gels and slurries, other high explosives, and permissible explosives.

Legislation and Government Programs.—During 1981, Pennsylvania surface coal mining regulations were revised to meet minimum standards required by the U.S. Office of Surface Mining Reclamation and Enforcement (OSM). If the revisions are approved by OSM, Pennsylvania will have responsibility to regulate and enforce surface coal mining activities within the State. Noncoal mining revisions were 25 Pa. Code, chapters 77.82, 97.31-97.35, and 97.72. These changes pertained to interim noncoal sur-

face regulations, river dredging, hazardous waste disposal, and underground waste disposal.

In late 1981, the Pennsylvania Department of Revenue adopted amendments to 61 Pa. Code, chapter 32, concerning exemptions to taxes on foundations used to support equipment, machinery, and parts used directly in mining. Another amendment involved exemption from the sales and use tax of the costs associated with backfilling and reclaiming mining facilities when required by law.

The Pennsylvania Bureau of Topographic and Geologic Survey conducted a number of mineral-related projects, including the revision of a report on characteristics of the State's rock formations for the new State geologic map published during the year. Also published were geologic maps for the Reading and Williamsport areas, with those for the Altoona, Lewisburg, and Hazleton areas near completion. County maps for Columbia and Schuylkill Counties were released during 1981. Currently, 26 county maps are available, with 10 others underway. Topics for mineral resource studies included Devonian sedimentary uranium occurrences, the Reading-Prong crystalline uranium occurrence, and whiting resources of southwestern Pennsylvania. Environmental publications included a geologic handbook for the Appalachian Trail within the State and a report on landslide hazard sites near Williamsport. Ground water resource studies were completed for Erie and Greene Counties; other studies pertained to the Susquehanna River Basin, Southern Anthracite Field, and Pike County. The water well data bank was updated, with approximately 16,000 new records added each year.

The U.S. National Oceanic and Atmospheric Administration approved Pennsylvania's Federal Coastal Zone Management Program. The program, designed to protect coastal areas of the State, will also influence mining of minerals, mainly sand and gravel.

In fiscal year 1981, the Federal Government returned $874,000 to the State for its share of funds generated by activities on the 510,000-acre Allegheny National Forest, in northwestern Pennsylvania. Fees were collected mainly for timbering and mineral leasing.

Also during fiscal year 1981, the U.S. Bureau of Mines had 152 active contracts valued at more than $15 million with Pennsylvania researchers. Much of the research was environment-related, such as a mine pollution project at Thorn Run Mine, Westmoreland County; a subsidence study at Scranton, Lackawanna County; and a mine refuse demonstration project at Allport, Clearfield County. Other projects pertained to improved mine health and safety.

Pennsylvania State University is one of 27 educational institutes throughout the Nation designated as a Mineral Institute Research Center by OSM. One project funded by OSM was the preparation of a "Handbook for State and Local Taxation of Minerals"; other project titles included "Processing of Dolomites for Refractory Applications" and "Cobalt Behavior in Ammonia Leaching Systems."

REVIEW BY NONFUEL MINERAL COMMODITIES

NONMETALS

Cement.—Despite decreased demand for cement in 1981, Pennsylvania ranked third nationally, behind Texas and California, in portland cement shipments and first in masonry cement shipments. Shipments of portland cement decreased nearly 8% in quantity and more than 9% in value, compared with 1980 levels. Portland cement was shipped from 16 plants in 7 counties; counties leading in tonnage shipped were Northampton and Lawrence. Principal producers were Société des Ciments Français (which owns the Coplay and Nazareth No. 1 and No. 2 plants) and Crane Co. (which owns the Wampum, White, and Gray plants).

Masonry cement shipments decreased nearly 10% in quantity and 27% in value, compared with 1980 levels. Shipments originated from 14 plants in 7 counties; counties leading in quantity shipped were Northampton, Lawrence, and Lehigh. Principal producers were Société des Ciments Français and Crane.

The drop in shipments of both portland and masonry cement was due mainly to curtailed residential, industrial, and commercial construction during the year. This, in turn, was attributed to high interest rates and continuing inflation.

Raw materials used in cement manufacture were cement rock, limestone, and shale, with lesser amounts of clay, sand, iron ore, and gypsum.

Penn-Dixie Industries, Inc., sold its cement plant in West Winfield, Butler County, in early May to Penn-West Cement Co., Inc., owned by a group of investors comprised mainly of former company executives. Penn-Dixie was in the process of selling certain assets in accordance with Federal bankruptcy requirements.

Lehigh Portland Cement, Allentown, Lehigh County, acquired the assets of Universal Atlas Cement, a division of United States Steel. The newly operating company is a unit of Heidelberger Zement of the Federal Republic of Germany. In another action, General Portland acquired Whitehall Cement Manufacturing in Lehigh County during midyear. Later, Canada Cement Lafarge acquired General Portland, making it the largest cement producer in North America. Other cement plants in eastern Pennsylvania with foreign ownership included Hercules Cement, owned by the American subsidiary of IFI International of Italy, and Coplay Cement Manufacturing, a subsidiary of Société des Ciments Français of France.

Fuller Co., Bethlehem, Northampton County, received a contract from Louisville Cement Co. for modernization of the Bessemer Cement Co. plant in Lawrence County. Improvements were to be made mainly to the No. 4 and No. 5 kiln systems. Fuller also received an $8 million contract from Saurashtra Cement & Chemical Industries Ltd. for modernization of kilns in India. In another action, the company hosted a four-member cement research team from China under a United Nations fellowship grant. Visits were made to various cement plants in the area.

A new cement distribution terminal was located at Tarentum, Allegheny County, along the Allegheny River northeast of Pittsburgh. The owner, Independent Cement Corp., Albany, N.Y., is a subsidiary of St. Lawrence Cement, Inc., a Holderbank Group company in Switzerland.

Four vibrating pile dischargers were installed by Vibranetics, Inc., at the Coplay Cement Manufacturing plant in Nazareth, Northampton County, to solve freezing material problems.

Mitchell Industries, Inc., Evans City, Butler County, formed a new subsidiary, Mitchell Fibercon, Inc., to produce Fibercon steel reinforcement fibers patented by United States Steel. The new fibers can be added to concrete mixes for increased resistance to severe temperature changes, eliminating the need for wire mesh. Annual production of the Fibercon steel was expected to be 7,000 tons annually.

In midyear, employees at Gulf + Western Industries, Inc.'s, Marquette Cement Co., Pittsburgh, signed a 34-month wage agreement with management providing annual wage increases, including productivity incentives, thought to be the first of its kind in the cement industry.

Crane's Medusa Corp. and the Pennsylvania Department of Environmental Resources signed a consent agreement requiring the company to improve various air pollution systems at its cement plant in West Manchester Township, York County.

Clays.—Production of clay and shale, excluding kaolin, totaled 1.2 million tons valued at nearly $7.5 million in 1981. This reflected a decrease in output and value of 24% and 38%, respectively, compared with those of 1980.

In 1981, 28 companies operated 63 clay and shale mines (3 fewer than in 1980) in 22 counties. Leading producing counties, in descending order of output, were Berks, Jefferson, and York.

The average unit value of clay and shale decreased by $1.33 to $6.01 per ton from 1980 to 1981. Clay and shale were used mainly in the manufacture of face brick, firebrick, and common brick.

Glen-Gery Corp., the leading clay and shale producer in the State, reopened six of its brick plants located in Clearfield, New Oxford, Shoemakersville, York, Reading, and Watsontown. Also during the year, a civil antitrust suit against Glen-Gery was dismissed when the U.S. Department of Justice ruled that the company's acquisition of Marion Brick Corp., Marion, Ohio, would not lessen competition. Glen-Gery is owned by Ibstock Johnson Ltd. of the United Kingdom.

Narvon Products, Inc., with one mine in Lancaster County, was the State's only kaolin producer. Kaolin was used mainly in the manufacture of fertilizers and paint products.

A new research center for the refractory industry was being constructed at State College, Centre County, near Pennsylvania State University.

Table 4.—Pennsylvania: Clays sold or used by producers, by use[1]

(Short tons)

Use	1980	1981
Common brick	128,081	29,617
Face brick	981,786	809,250
Firebrick, block and shapes	272,500	161,303
Flue linings	34,735	40,790
Mortar and cement, refractory	17,157	31,746
Portland and other cements	153,105	123,626
Tile: Drain, quarry, and structural	47,904	34,409
Other[2]	14,037	15,310
Exports: Mortar, cement, other refractories	286	333
Total	1,649,591	1,246,384

[1]Excludes kaolin.
[2]Includes fertilizers (1980), lightweight aggregates, paint, pottery (1980), roofing granules (1980), sewer pipe, and terra cotta (1980).

Coke.—Keystone Coke Co., a subsidiary of Alabama By-Products Corp., closed its 110-coke-oven battery at Conshohocken, near Philadelphia, in midyear. In the western part of the State, United States Steel closed 2 of the 11 coke ovens at its Clairton operations near Pittsburgh but continued construction on new ovens set for completion in mid-1982. Dravo Corp. received a contract for the design and construction of a cokeside emission control system for five coke oven batteries at the Pittsburgh Works of Jones & Laughlin Steel Corp. (J&L), a subsidiary of LTV Corp.

Gem Stones.—Gem stones and mineral specimens were collected mainly by amateur collectors and mineral dealers. Value of gem stones collected in 1981 was estimated at $5,000. During the year, three new Pennsylvania minerals were recognized and verified by the Commission of New Minerals and Mineral Names of the International Mineralogical Association. They are known as desautelsite, downeyite, and matulaite. Desautelsite was first collected at the Cedar Hill quarry, Lancaster County; downeyite, near a burning culm bank near Glen Lyon, Luzerne County; and matulaite, from the Bachman iron mine near Hellertown, Northampton County.

Graphite.—Synthetic graphite production in Pennsylvania increased significantly both in quantity and in value from 1980 to 1981. Synthetic graphite is made from petroleum coke, lampblack, carbon blacks, and various amounts of natural graphite, mixed with carbonaceous binders and heated to high temperatures. Of the 17 producers of carbon and graphite products in the State, the 3 largest employers were Airco Speer Carbon Co., Keystone Carbon Co., and The Stackpole Carbon Corp., all in St. Marys, Elk County.

Airco Speer Carbon Co. announced a $23 million modernization program, expected to increase electrode production by 20% when completed in mid-1982. Electrodes are used primarily in electric steelmaking furnaces.

Stackpole was the leading supplier of motor brushes to the U.S. automotive industry. In addition, the firm manufactured carbon-related products for the transportation, aerospace, chemical, utility, metals, communications, electronic, and appliance industries. Stackpole operations are also located in other States, Canada, and Taiwan.

Gypsum.—Raw gypsum mined by United States Gypsum Co. in Michigan and Nova Scotia was calcined at its Philadelphia facility; the operation employs about 150 workers. Production of calcined gypsum decreased in quantity and value from 1980 to 1981. Calcined gypsum was used mainly in the manufacture of prefabricated products, such as regular wallboard, type-X wallboard, and lath. These products were used extensively in home and commercial construction.

Iodine.—Whitmoyer Laboratories, Inc., in Lebanon County, and West Agro-Chemical, Inc., in Washington County, imported crude iodine for use in the manufacture of pharmaceuticals, catalysts, and sanitation products. Approximately 42% less iodine was consumed in Pennsylvania in 1981, compared with 1980 levels.

Iron and Steel Slag.—Pennsylvania ranked first nationally in 1981 in sales of iron and steel slag. Total slag processed amounted to 4.7 million tons valued at $21.4 million, a decrease of 17% in output and

10% in value, compared with those of 1980. The decline in slag output reflected a drop in the State's pig iron production. Of the total slag produced, 87% was iron slag, and 13%, steel slag.

Types of iron slag sold included air-cooled, expanded, and granulated. Major uses of air-cooled slag were for asphalt and concrete aggregate and as a road base material and fill; expanded slag was used as lightweight aggregate; and granulated slag was used for road base material and fill. Steel slag was used mainly for road base material. Principal slag processors included Duquesne Slag Co., Inc., Dunbar Slag Co., Inc., and Standard Slag Co.

Lime.—In 1981, Pennsylvania ranked third nationally behind Ohio and Missouri in lime production. State output totaled nearly 1.7 million tons, or slightly less than 9% of the national total. The average unit value of lime was $50.55 per ton, an increase of $2.89 over that of 1980.

Lime was produced at 10 plants in 8 counties. Centre, with three plants, was the leading lime-producing county in the State, accounting for nearly 34% of the State's output. Other counties, in descending order of output, were Lebanon, Butler, Adams, Chester, York, Montgomery, and Mifflin, each with one plant. Principal producers of lime were Bethlehem Steel Corp. (Annville plant, Lebanon County), Marblehead Lime Co. (Pleasant Gap plant, Centre County), Mercer Lime & Stone Co. (Branchton plant, Butler County), and Warner Co. (Bellefonte plant, Centre County).

Although consumption of lime by the steel industry continued to decline, the demand for water treatment purposes increased slightly.

Table 5.—Pennsylvania: Lime sold or used by producers, by use

Use	1980		1981	
	Quantity (short tons)	Value (thousands)	Quantity (short tons)	Value (thousands)
Steel, basic oxygen furnace	698,721	$32,060	620,542	$30,890
Steel, electric	237,732	11,348	278,032	13,674
Sewage treatment	181,721	8,950	197,815	10,065
Water purification	140,805	6,979	110,531	5,930
Steel, open-hearth	124,761	6,297	81,585	3,333
Acid mine water	57,782	2,853	67,916	3,613
Mason's lime	74,896	3,773	49,433	2,261
Agriculture	34,007	1,386	29,456	1,562
Paper and pulp	15,607	753	20,657	991
Tanning	14,238	714	W	W
Brick, sand-lime	W	W	3,991	234
Metallurgy, other	W	W	3,934	176
Petroleum refining	W	W	3,408	187
Other[1]	188,130	9,178	222,427	12,502
Total	1,768,400	84,291	1,689,727	85,418

W Withheld to avoid disclosing company proprietary data; included with "Other."
[1]Includes alkalies, explosives, glass, oil well drilling, ore concentration, other chemical and industrial uses, other construction uses, (1980); paint, petrochemicals, precipitated calcium carbonate, (1981); refractory dead-burned dolomite, silica brick, soil stabilization, sugar refining, (1980); sulfur removal from stack gases, and wire drawing.

Mica.—Only one company in the State produced crude mica in 1981. Gross Minerals Corp. near Aspers, Adams County, produced scrap and flake mica from an underground mining operation. Output and value both increased more than 11% from 1980 to 1981. The product was used in mica paper and other electrical insulating materials.

Mullite.—Production of synthetic mullite in 1981 increased slightly, but value decreased, compared with 1980 levels. A. P. Green Refractories, Philadelphia County, produced synthetic mullite by heating aluminum-silicate materials to high temperatures. Mullite, in general, is a heat-resistant material used in furnace linings, refractories, and glass products.

Peat.—In 1981, Pennsylvania ranked eighth nationally in peat sales. Sales decreased approximately 3% in quantity, but increased 17% in value, compared with 1980 figures. Four peat operations were in Luzerne County, two in Lackawanna County, and one each in Monroe, Erie, and Lawrence Counties. The largest producer in eastern Pennsylvania was Gouldsboro Wayne Peat Co., Lackawanna County; in western Pennsylvania, Corry Peat Products Co., Erie County. Processed humus and reed sedge peat sold for approximately $26.00 per ton, an increase of almost $5.00 above 1980 levels. Uses were for agricultural and horticultural purposes.

Perlite.—Crude perlite mined out of State

was shipped into Pennsylvania and expanded at six plants by five companies. The total amount of expanded perlite sold and used in 1981 was 36,300 tons valued at $4.8 million, reflecting a decrease of 6.7% in production and 7.3% in value, compared with those of 1980. Plants in western Pennsylvania were the Therm-O-Rock Div. of Allied Chemical Co. in New Eagle, Washington County, and Perlite Manufacturing Co. of Pittsburgh, Inc., in Carnegie, Allegheny County. Producers in eastern Pennsylvania were World Industries, Inc. (formerly Armstrong Cork Co.), Pennsylvania Perlite Corp., and United States Gypsum. Most of the perlite plants were relatively small, employing from 12 to 21 persons. Perlite was used mainly in plaster and cement aggregates and for horticultural purposes.

Pyrophyllite.—American Olean Tile Co. near Lansdale, Montgomery County, purchased raw pyrophyllite produced in other States. Purchase of raw ore increased more than 64% in quantity and value from 1980 to 1981. The ground product was used mainly in the manufacture of ceramic products.

Quartz Crystal.—Bliley Electric Co., at Erie, and P. R. Hoffman Co., a division of Norlin Corp., at Carlisle, imported lasca, a nonelectronic-grade quartz material used as feedstock for growing cultured quartz crystal. All cultured quartz crystal produced was used internally by both companies. Other consumers of cultured crystal in Pennsylvania were Anderson Electronics, Inc., Blair County; Dynamics Corp. of America, Cumberland County; Erie Frequency Div., Erie County; McCoy Electronics Co., Cumberland County; J. K. Miller, Allegheny County; and Piezo Crystal Co., Inc., Cumberland County. Major use of cultured quartz was for oscillators used in the manufacture of timepieces, televisions, and citizens band radios.

Sand and Gravel.—In late 1980, the U.S. Bureau of Mines implemented new canvassing procedures for its surveys of sand and gravel producers. Beginning with the collection of 1981 production data, the survey of construction sand and gravel producers will be conducted for even-numbered years only; the survey of industrial sand and gravel producers will continue to be conducted annually. Therefore, this chapter contains only preliminary estimates for construction sand and gravel production but complete data on industrial sand and gravel. Estimates for production of construction sand and gravel for odd-numbered years will be revised and finalized the following year.

Production of construction sand and gravel in Pennsylvania during 1981 totaled an estimated 14.3 million tons valued at $55.4 million, reflecting slight decreases in quantity and value compared with those of 1980. These declines were attributed to a downturn in housing starts and road and commercial construction. Based on 1980 data, approximately 114 companies produced sand and gravel from an estimated 130 pits in 41 of the State's 67 counties. Most of the operations were relatively small, producing less than 200,000 tons each and supplying local construction needs. Construction sand and gravel was used mainly for concrete aggregate, asphaltic concrete, and road base.

Pennsylvania ranked 12th of 38 States that produced industrial sand in 1981. Industrial sand was produced only in Allegheny and Huntingdon Counties, averaging $13.18 per ton, an increase of $1.39 over 1980 levels. Major uses were in glass manufacture, ferrous foundry operations, and chemical and metallurgical processes.

Several developments affected Pennsylvania's glass industry, a leading consumer of industrial sand. PPG Industries, Inc., announced it will build a fabrication unit in mid-1982, increasing capacity for architectural glass products, at its plant in Ford City, Armstrong County. Pennsylvania Float Glass planned to reopen a vacant glass plant in Jefferson Borough, south of Pittsburgh, in mid-1982. Products will be for the automotive, home, and construction industries. The Coca-Cola Bottling Co. of New York announced sale of its facility in Jeannette, Westmoreland County, which produced glass ceramic tableware.

Table 6.—Pennsylvania: Sand and gravel sold or used by producers

	1980			1981		
	Quantity (thousand short tons)	Value (thousands)	Value per ton	Quantity (thousand short tons)	Value (thousands)	Value per ton
Construction:						
Sand	8,293	$31,559	$3.81	NA	NA	NA
Gravel	6,261	24,324	3.88	NA	NA	NA
Total or average	14,554	55,883	3.84	p14,300	p$55,400	p$3.87
Industrial sand	1,049	12,374	11.79	W	W	13.18
Grand total or average	15,603	68,257	4.37	W	W	p4.46

pPreliminary. NA Not available. W Withheld to avoid disclosing company proprietary data.

Stone.—In 1981, Pennsylvania ranked third nationally, behind Texas and Florida, in total stone production, with output amounting to 53.3 million tons valued at $215 million. This represents a decrease of 13% in quantity and 4% in value, compared with those of 1980. Of the State's 212 quarries, 191 produced crushed stone, and the remainder, dimension stone. A total of 9 quarries produced more than 1 million tons each, 13 quarries produced between 500,000 and 1 million tons, 107 quarries produced between 100,000 and 500,000 tons, and 83 quarries produced less than 100,000 tons. Limestone accounted for almost 80% of total stone output. Other rock types quarried were granite, sandstone, and traprock.

Crushed stone was produced in 50 of the State's 67 counties. Leading producing counties were Northampton and Montgomery, each producing more than 4 million tons. Nearly 88% of the crushed stone was trucked to market; other means of transportation included railroad and waterway.

Dimension stone was quarried at 21 operations in 11 counties. Five quarries were located in Northampton County, four in Chester County, three in Montgomery County, two in Susquehanna County, and one each in Bucks, Butler, Delaware, Franklin, Lehigh, Potter, and Wayne Counties. Sandstone was the principal type of dimension stone produced; other types were granite and slate.

General Crushed Stone Co., a subsidiary of Koppers Co., Inc., cooperated with Trout Unlimited in maintaining optimum trout-hatching conditions in a stream near the company's Downingtown quarry in Chester County. Water used in quarry operations was returned to the creek silt-free and well oxygenated, which is beneficial for trout hatching.

In eastern Pennsylvania, the Jackson Township Concerned Taxpayers Group questioned endeavors by township officials to restrict quarrying by American Asphalt on property obtained prior to a township ordinance that zoned the land as agricultural. The group requested resolution of the problem to conserve township funds.

Table 7.—Pennsylvania: Crushed stone[1] sold or used by producers, by use

(Thousand short tons and thousand dollars)

Use	1980		1981	
	Quantity	Value	Quantity	Value
Agricultural limestone	1,992	12,712	1,687	13,012
Poultry grit and mineral food	66	654	W	W
Concrete aggregate	4,916	18,002	3,869	15,267
Bituminous aggregate	5,588	20,334	4,796	18,746
Macadam aggregate	1,354	4,434	984	3,775
Dense-graded road base stone	11,899	39,802	9,889	35,916
Surface treatment aggregate	2,144	7,787	1,873	7,687
Other construction aggregate and road stone	14,659	46,025	13,047	45,784
Riprap and jetty stone	667	2,667	558	2,140
Railroad ballast	1,532	5,614	1,187	4,347
Filter stone	488	2,059	412	1,798
Manufactured fine aggregate (stone sand)	1,533	6,620	1,424	5,863
Terrazzo and exposed aggregate	263	1,230	W	W
Cement manufacture	7,378	17,250	6,815	17,466

See footnotes at end of table.

Table 7.—Pennsylvania: Crushed stone[1] sold or used by producers, by use —Continued

(Thousand short tons and thousand dollars)

Use	1980		1981	
	Quantity	Value	Quantity	Value
Lime manufacture	2,768	10,470	2,886	12,127
Flux stone	2,307	10,846	2,157	11,615
Refractory stone	82	1,644	W	W
Mine dusting	154	2,030	97	1,322
Asphalt filler	101	759	112	1,302
Other fillers or extenders	107	1,969	127	2,253
Building products	90	262	64	218
Fill	2	6	3	8
Glass manufacture	W	681	W	W
Roofing granules	191	310	W	W
Other[2]	862	4,066	1,274	7,174
Total[3]	61,143	218,231	53,258	207,821

W Withheld to avoid disclosing company proprietary data; included with "Other."
[1]Includes limestone, granite, sandstone, traprock, and other stone.
[2]Includes dead-burned dolomite, chemical stone for alkali works, abrasives (1981), whiting or whiting subtitute, paper manufacture (1981), and other uses not specified.
[3]Data may not add to totals shown because of independent rounding.

Table 8.—Pennsylvania: Dimension stone[1] sold or used by producers, by use

Use	1980			1981		
	Short tons	Cubic feet (thousands)	Value (thousands)	Short tons	Cubic feet (thousands)	Value (thousands)
Rough stone:						
Rough blocks	113	1	$16	45	(2)	$7
Irregular-shaped stone	5,805	74	179	17,855	229	715
Rubble	10,726	137	122	1,998	25	42
Monumental	4,007	40	581	4,682	47	734
Flagging	1,478	19	55	840	11	41
Dressed stone:						
Cut	17,815	228	793	W	W	W
Sawed	W	W	10	--	--	--
House stone veneer	W	W	1	--	--	--
Flagging	5,722	63	506	6,345	70	585
Roofing slate (standard)	2,761	30	1,267	2,803	31	1,355
Structural and sanitary	4,286	47	1,904	2,449	27	2,342
Flooring slate	W	W	W	523	6	134
Other[3]	12,686	140	963	13,290	161	1,237
Total[4]	65,399	780	6,397	50,830	607	7,193

W Withheld to avoid disclosing company proprietary data: included with "Other."
[1]Includes granite, sandstone, slate, and other stone.
[2]Less than 1/2 unit; included with "Other."
[3]Includes stone used in dressed construction, blackboards, bulletin boards and school slates, billiard table tops, and other uses not specified.
[4]Data may not add to totals shown because of independent rounding.

Sulfur.—Elemental sulfur was recovered at three petroleum refineries in Philadelphia and Delaware Counties, with lesser amounts from natural gas treatment by a steel company in Allegheny County. Shipments of recovered sulfur in Pennsylvania during 1981 amounted to 56,000 metric tons valued at $4.7 million, a slight decrease in quantity but a 36.8% increase in value compared with those of 1980. Principal uses were in the manufacture of sulfuric acid, for leaching of ores, and in chemicals, fibers, paints, and explosives.

Tripoli.—Keystone Filler & Manufacturing Co.'s Sheddy Mine in Northumberland County produced tripoli, which was used as an abrasive and filler.

Vermiculite.—Beneficiated vermiculite mined in other States was shipped into Pennsylvania and exfoliated by A-Tops Corp. (formerly J. P. Austin, Inc.) in Allegheny County and W. R. Grace & Co. in Lawrence County. Sales of vermiculite dropped more than 10% in quantity and 7%

in value from 1980 to 1981. Unit value of exfoliated vermiculite was nearly $255 per ton, an increase of $8.61 over that of 1980. Major uses were for lightweight concrete aggregate, loose fill insulation, horticultural purposes, and soil conditioning.

METALS

Abrasives, Manufactured.—Manufactured abrasives, consisting of steel shot and grit, were produced by Ervin Industries, Inc., and Pangborn, both in Butler, Butler County, and Durasteel Abrasives Co. in Mount Pleasant, Westmoreland County. Shipments increased more than 6% in quantity and 13% in value compared with 1980 levels. Finished products were used as abrasives. Silicon carbide, another manufactured product, was produced by Satellite Alloy Corp. in Springdale, Allegheny County, for nonabrasive applications.

Aluminum.—Aluminum Co. of America planned a demonstration aluminum continuous strip caster at its technical center near New Kensington, northeast of Pittsburgh. The research and development purposes of the project were to improve productivity of operating units.

NRD Mining Ltd., Vancouver, British Columbia, Canada, acquired Keystone Resources, a secondary aluminum producer with a plant at Mars, near Pittsburgh. Keystone recently completed a second reverberatory furnace that doubled capacity to 60 million pounds per year.

Beryllium.—Cabot Corp. changed the name of its former division, Kawecki Berylco Industries, to Cabot Berylco, Inc. (CBI). Within Cabot it is the Cabot Berylco Div., producing beryllium alloys at Reading, Berks County. Research and development facilities are also located in Boyertown and Reading.

Cadmium.—The primary producer of cadmium in 1981 was New Jersey Zinc Co. in Lehigh County. Cadmium, a byproduct of zinc smelting, was used for electroplating, plastic stabilizers, and pigments.

Ferroalloys.—In 1981, ferroalloys shipments in Pennsylvania totaled 6,251 tons valued at $68.6 million, reflecting decreases of 8% in quantity and 26% in value, compared with 1980 figures. Six ferroalloy plants were located in the State—two in Lawrence County, two in Washington County, and one each in Berks and Bucks Counties.

Reactive Metals & Alloys Corp. in West Pittsburg, Lawrence County, completed installation of a submerged-arc furnace for production of ferrozirconium silicide, ferroboron, and calcium silicide. All products are used in the manufacture of high-strength, low-alloy steels.

A unit of Union Oil Co. of California processed samarium concentrates, with the oxide shipped to the Molycorp, Inc., plant in Washington, Washington County. The 40-ton-per-year plant converted the oxide to samarium cobalt metals and alloys for use in production of audio equipment.

At yearend, the KBI Div. of Cabot in Revere, Bucks County, and Shieldalloy Corp. in Newfield, N.J., lowered their price for vacuum-grade ferrocolumbium. Reading Alloys, Inc., Robesonia, Berks County, also sold ferrocolumbium at the reduced rate.

Iron Oxide Pigments.—Pennsylvania led the Nation in value of finished iron oxide pigments in 1981 and ranked second in total shipments. Excluding regenerator oxides, shipments totaled 31,505 tons valued at more than $27 million. Finished iron oxide pigments were produced in Carbon, Chester, Montgomery, and Northampton Counties, all in the eastern part of the State. Regenerator oxides, including steel plant dust, were produced in Allegheny County. Iron oxide pigments were used mainly in paints and coatings, construction materials, and ferrites and other magnetic and electronic applications.

In 1981, Pfizer, Inc., announced a $50 million expansion program to increase production capacity for synthetic iron oxides. The company also planned a $1 million expansion of the research facilities at its plant in Easton, Northampton County, for magnetic particle research and development.

Iron and Steel.—In 1981, Pennsylvania ranked second of 14 States in pig iron shipments and value. Shipments amounted to almost 15 million tons valued at more than $3 billion, representing a decrease of 3% in quantity but a slight increase in value, compared with 1980 figures. Basic pig iron accounted for nearly 93% of total production. Other types of pig iron produced were bessemer, malleable, and direct castings.

All steel companies in Pennsylvania were affected by the sagging economy during 1981. Employment declined and plants temporarily closed. United States Steel announced at yearend temporary closure of its massive Edgar Thomson Works near Pittsburgh and suspension of hot strip mill operations at its Irvin Works. Colt Indus-

tries, Inc., Crucible Stainless & Alloy Div. at Midland, Beaver County, proposed layoffs of 2,000 of its 5,000 employees. Mesta Machine Co., West Homestead, one of the Nation's largest manufacturers of rolling mills and other steelmaking equipment, terminated several operations. J&L's Hazelwood Works in Pittsburgh closed its ingot mold foundry, and Bucyrus-Erie Co., its 80-year-old foundry in Glassport, Allegheny County. Bethlehem Steel's Johnstown plant reduced open hearth operations. Spang Industries, Inc., announced closure of its Fort Pitt Bridge and Electric Weld steel-fabricating operations at Canonsburg, Washington County.

To become more competitive, steel companies reorganized and modernized operations. A reorganization within United States Steel, the Nation's largest steel producer, established a fabricating and engineering unit and restructured the manufacturing and associated subsidiaries. State projects within the former unit included erection of a 42-story building in Pittsburgh, modernization of a coal-unloading and handling system in Philadelphia, and increased sucker rod production at a new facility in Oil City. United States Steel's modernization program at the national plant in McKeesport included two new quench and temper facilities to meet the increasing demand for oil country tubular products. The company's Fairless Hills plant in eastern Pennsylvania began a 5-year program to improve air pollution controls, with similar abatement programs planned for Pittsburgh area facilities.

Bethlehem Steel, the Nation's second largest steelmaker, improved structural mills at its plant in Bethlehem; installed a continuous bloom caster at its Steelton plant; upgraded the pickling and rinse line and the hot-dip galvanizing facilities, including a new fastener division at the Lebanon plant; commenced operation of electric furnaces at the Johnstown plant; and established a wire rope division at Williamsport.

J&L, a subsidiary of LTV and the third largest steel producer in the Nation, continued operations in the Pittsburgh area, but on a reduced basis. Out-of-State ventures included the purchase of McLouth Steel Corp.'s stainless steel division; a merger with Ohio-based Youngstown Sheet & Tube Co., another LTV unit; and purchase of four cold-finished bar mills and one grinding bar mill from Predco, Inc.

Modernizations by Sharon Steel Corp., a subsidiary of NVF Co., included repowering of electric furnaces, addition of six new soaking pits, and completion of a second basic oxygen upright steelmaking furnace. These improvements eliminated the need to purchase slabs from other steel companies. The Victor Posner Works in Farrell, Mercer County, represents the company's largest operation, with capacity in excess of 110,000 tons of steel per month.[3]

General Steel Industries, Inc., Avonmore, Westmoreland County, was installing a vertical centrifugal casting system scheduled for completion in mid-1982. The Avonmore plant manufactured cast iron and steel rolls for the steel industry.

J. Ray McDermott & Co. announced a modernization project for its Babcock & Wilcox Tubular Products Div. at Beaver Falls, northwest of Pittsburgh. Included is an electric furnace, vacuum-arc ladle refiner, and a four-strand continuous caster. A quench and temper heat-treat furnace was anticipated for the nearby Koppel facility.

Washington Steel Corp., south of Pittsburgh, doubled capacity of its hot strip mill to 140,000 tons of stainless steel per year. Contributing to the increase was a new continuous slab caster that became operational in December 1980 at the company's facility in Houston, Washington County.

Lukens Steel Co., Coatesville, Chester County, the largest independent plate producer in the Nation, restructured operations to offset increases in cost of gas and electricity, which has risen more than 60% in the last 2 years. Plant efficiency has reduced the company's energy costs per shipped ton of product by 28%, compared with figures of a similar period 8 years ago.

Davy Corp. Ltd., London, United Kingdom, purchased the Swindell Furnace Group, a subsidiary of Wheelabrator-Frye, Inc. Swindell Furnace designs heat-treating furnaces for both the steel and aluminum industries. The new company, based in Pittsburgh, will be known as Davy McKee Equipment Co.

The Universal Cyclops Specialty Steel Div. of Cyclops Corp., Bridgeville, Allegheny County, received an IR-100 award from Industrial Research and Development Magazine for development procedures used in the production of high-speed steel and superalloy parts from powders. These awards are presented annually to developers of outstanding new technical products.

Teledyne Vasco, Latrobe, Westmoreland County, marketed a maraging steel without cobalt and with less molybdenum, but with

titanium added for strength. Inco Research & Development Center, Inc., holds the patent for the new product.

Wheeling-Pittsburgh Steel Co. planned to install a continuous caster and expand its seamless tube mills at operations south of Pittsburgh. Recently, a modern rail mill was completed, producing 78-foot, high-speed rail sections.

After its first 12 months as a private company, Allegheny Ludlum Steel Corp., which was purchased from a company now known as Allegheny International, Inc., planned modernization projects to take place over the next 5 years. Included are improvements to the hot strip plant at Brackenridge, Allegheny County, increasing speciality sheet and strip capacity and improving cold roll finishing equipment.

Armco, Inc., made plans to increase output of tubular products at its facility in Ambridge, Beaver County. At Armco's Butler Works, north of Pittsburgh, a second continuous slab caster was expected to be operational by early 1982.

Carpenter Technology Corp., Reading, announced construction of a hot rolling mill, a rotary forge, and additional melting equipment for production of specialty steel products, increasing production capacity by 50%. Completion of the $165 million project was anticipated by 1984.

Latrobe Steel Co. planned to install an electroslag furnace, an argon oxygen refining vessel, and related facilities at its plant in Latrobe, Westmoreland County.

Nickel.—International Metals Reclamation Co., Inc., planned to complete construction of a $2 million nickel recovery plant by early 1982 at its Pittsburgh Pacific Processing Co. Div. on Neville Island, near Pittsburgh. The plant will be capable of processing about 25 million pounds per year of spent nickel catalysts, an industrial waste product.

Mallinckrodt, Inc., anticipated construction of a nickel recovery plant at its Erie facility. Spent catalyst from vegetable oil manufacturers is to be processed for nickel recovery. Completion date was set for early 1983.

Zinc.—Pennsylvania ranked fifth of 16 States that produced zinc in 1981. Compared with 1980 levels, zinc output increased almost 10% and value more than 30%, mainly owing to a higher unit price. Lehigh County, in eastern Pennsylvania, was the only county in which zinc was produced.

St. Joe Minerals Corp.'s smelter in Monaca, Beaver County, reopened after a 1-year closure owing to depressed zinc prices. Reopening corresponded to discovery of a large, high-grade zinc deposit near the company's zinc-producing Balmat and Edwards Mines in St. Lawrence County, N.Y. St. Joe also reactivated its zinc dust production facilities at the Monaca smelter.

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[1]State Liaison Officer, Bureau of Mines, Pittsburgh, Pa.
[2]Liaison program assistant, Bureau of Mines, Pittsburgh, Pa.
[3]Sharon Steel Corp. 1981 Annual Report.

Table 9.—Principal producers

Commodity and company	Address	Type of activity	County
Abrasives:			
Durasteel Abrasives Co	Bridgeport Rd. Mount Pleasant, PA 15666	Plant	Westmoreland.
Ervin Industries, Inc	East Butler Rd. Butler, PA 16001	do	Butler.
Satellite Alloy Corp	Satellite Industrial Park Box 171 Springdale, PA 15144	do	Allegheny.
Cement:			
Crane Co	300 Park Ave. New York, NY 10022	do	Lawrence and York.
Louisville Cement Co	501 South 2d St. Louisville, KY 40202	do	Lawrence.
Penn-West Cement Co., Inc	R.D. 2 Cabot, PA 16023	do	Butler.
Société des Ciments Français	Tour Général, Quartier Villon Cédex 22 192088 Paris, La Défense France	do	Lehigh and Northampton.

See footnotes at end of table.

Table 9.—Principal producers —Continued

Commodity and company	Address	Type of activity	County
Clays:			
Glen-Gery Corp	Box 1542 Reading, PA 19603	Pit	Adams, Berks, Northumberland, Union, York.
Hanley Co	Box 376 Bradford, PA 16701	Pit	Jefferson and McKean.
Harbison-Walker Refractories Co	2 Gateway Center Pittsburgh, PA 15222	Pit	Clearfield and Somerset.
Narvon Products, Inc	Narvon, PA 17555	Pit	Lancaster.
Graphite, synthetic:			
Airco Speer Carbon Co	800 Theresia St. St. Marys, PA 15857	Plant	Elk.
Keystone Carbon Co	1935 State St. St. Marys, PA 15857	do	Elk.
The Stackpole Carbon Corp	St. Marys, PA 15857	do	Elk.
Gypsum, calcined:			
United States Gypsum Co.[1]	101 South Wacker Dr. Chicago, IL 60606	do	Philadelphia.
Iron oxide pigments:			
Pfizer Inc., Minerals, Pigments, & Metals Div	640 North 13th St. Box 548 Easton, PA 18042	do	Northampton.
Prince Manufacturing Co	700 Lehigh St. Bowmanstown, PA 18030	do	Carbon.
Reichard-Coulston, Inc	15 East 26th St. New York, NY 10010	do	Northampton.
Lime:			
Bethlehem Steel Corp	Martin Tower Bethlehem, PA 18016	do	Lebanon and Adams.
Marblehead Lime Co	300 West Washington St. Chicago, IL 60606	do	Centre.
Mercer Lime & Stone Co	1120 Porter Bldg. Pittsburgh, PA 15219	do	Butler.
Warner Co	Yellow Springs Rd. Devault, PA 19432	do	Centre.
Peat:			
Corry Peat Products Co	515 Turnpike Rd. Corry, PA 16407	Bog	Erie.
Gouldsboro Wayne Peat Co	Box 68 Gouldsboro, PA 18424	Bog	Lackawanna.
Lake Benton Peat Moss	622 South Blakely St. Dunmore, PA 18512	Bog	Do.
Perlite, expanded:			
Pennsylvania Perlite Corp	Box 2002 Lehigh Valley, PA 18001	Plant	Lehigh and York.
Perlite Manufacturing Co	Box 478 Carnegie, PA 15106	do	Allegheny.
World Industries, Inc	Lancaster, PA 17603	do	Lancaster.
Sand and gravel:			
Davison Sand & Gravel Co	3d Ave. and 4th St. New Kensington, PA 15068	Dredge	Westmoreland.
Dravo Corp	1 Oliver Plaza Pittsburgh, PA 15222	do	Beaver.
Erie Sand Steamship Co	Box 153 Erie, PA 16512	do	Erie.
Shippingport Sand & Gravel Co	1200 Stambaugh Bldg. Youngstown, OH 44503	Pit	Armstrong.
Warner Co.[2 3 4]	1721 Arch St. Philadelphia, PA 19103	Pit	Bucks.
Slag:			
Bethlehem Mines Corp.[2 3]	701 East 3d St. Bethlehem, PA 18016	Plant	Cambria.
Dunbar Slag Co	Box 666 Sharon, PA 16146	do	Mercer.
Standard Slag Co	1200 Stambaugh Bldg. Youngstown, OH 44503	do	Cambria.
Stone:			
G. & W. H. Corson, Inc.[3]	Plymouth Meeting, PA 19462	Quarry	Montgomery.
General Crushed Stone Co	Box 231 Easton, PA 18042	do	Bucks, Chester, Delaware, Lancaster, Luzerne, Perry.
Glasgow Quarry, Inc	Box 248 Glenside, PA 19038	do	Montgomery.
Martin Marietta Corp	Box 30013 Raleigh, NC 27612	do	Centre, Chester, Fayette, Northampton.

See footnotes at end of table.

Table 9.–Principal producers —Continued

Commodity and company	Address	Type of activity	County
Stone —Continued			
New Enterprise Stone & Lime Co., Inc	New Enterprise, PA 16664	Quarry	Bedford, Blair, Cumberland, Franklin, Huntingdon, Somerset.
Sulfur:			
Atlantic Richfield Co	3144 Passyunk Ave. Philadelphia, PA 19145	Plant	Philadelphia.
British Petroleum Corp., Ltd	Box 428 Marcus Hook, PA 19061	do	Delaware.
Gulf Oil Corp	Box 7408 Philadelphia, PA 19101	do	Philadelphia.
Tripoli:			
Keystone Filler & Manufacturing Co	Muncy, PA 17756	Pit	Northumberland.
Vermiculite, exfoliated:			
W. R. Grace & Co	62 Whittemore Ave. Cambridge, MA 02140	Plant	Lawrence.

[1]Also expanded perlite.
[2]Also stone.
[3]Also lime.
[4]Also slag.